

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-026812**Date Inspected:** 03-Dec-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

CWI Name:	Fred Von Hoff and Steve Jensen			CWI Present:	Yes	No	
Inspected CWI report:	Yes	No	N/A	Rod Oven in Use:	Yes	No	N/A
Electrode to specification:	Yes	No	N/A	Weld Procedures Followed:	Yes	No	N/A
Qualified Welders:	Yes	No	N/A	Verified Joint Fit-up:	Yes	No	N/A
Approved Drawings:	Yes	No	N/A	Approved WPS:	Yes	No	N/A
				Delayed / Cancelled:	Yes	No	N/A
Bridge No:	34-0006			Component:	SAS OBG		

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

QA randomly observed ABF/JV qualified welder Join Pei Wang continuing to perform Complete Joint Penetration (CJP) groove welding fill pass on Orthotropic Box Girder (OBG) 13E/14E bottom plate 'D3' (0mm to 3120mm) inside. The welder was observed manually welding in the 1G (flat) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1. The 16mm plate thick splice joint has a single V-groove design. The splice joint was continuously preheated to greater than 150 degrees Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blankets located at the bottom of the plate being welded. During welding, ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 255 amperes, 24.5 volts which appears in compliance to the contract requirements. During the shift fellow QA Craig Hager took over the observations on this welding work.

At OBG 14E-PP125-E4-#2 lifting lug hole infill plate to top deck plate outside, ABF welder Erick Sparks was observed continuing to perform 1G Shielded Metal Arc Welding (SMAW) welding fill pass to cover pass on the infill plate to top deck plate butt joint. The welder was noted using 5/32" diameter E7018H4R implementing Welding Procedure Specification (WPS) ABF-WPS-D15-1050A-CU Rev.1 for the Seismic Performance Critical Member (SPCM) butt joint. During welding, ABF QC Fred Von Hoff was noted monitoring the welder's welding parameters with measured working current of 185 amperes on the 5/32" diameter E7018H4R electrode. The

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

welder was noted preheating the plates to more than 150°F using propylene gas torch prior welding. During the shift, cover pass welding on the top side location of the butt joint was completed and the welder went underneath the joint being welded and performed back gouging. After the lunch break, fellow QA Craig Hager also took over the observations on this welding work.

QA randomly observed ABF/JV qualified welders Rory Hogan (ID #3186) and Jeremy Dolman (ID #5042) perform CJP groove (splice) back welding fill pass on a 30mm/35mm unequal thickness Orthotropic Box Girder (OBG) 13W/14W bottom plate 'D1' (0mm to 9900mm). The welders were observed welding in the 4G (overhead) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3110-4. The welders were using a track mounted welder holder assembly that is remotely controlled. The Seismic Performance Critical Member (SPCM) splice joint being welded has the backing bar gouged using the Esab Plasma Arc machine and was ground smooth. The splice joint was continuously preheated to greater than 200 degree Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blanket on top of the weld prior welding and moving the same heater blanket to the side of the weld during welding. The vicinity of the welding area was properly protected from wind. During welding, ABF Quality Control (QC) Steve Jensen was noted monitoring the welding parameters of the welder. The parameter readings taken during welding were 250 amperes, 23.1 volts with travel speed of 165 mm per minute and calculated heat input of 2.1 Kjoules per mm which are deemed acceptable to contract specifications. During welding, an approximately 600mm long of the fill pass was noted with porosity due to shielding gas problem. The welders have resolved the shielding gas issue and removed the porosity then resumed welding. At the end of the shift, FCAW-G fill pass welding was still continuing and should remain Monday.

At OBG 13W/14W vertical plate 'I' outside, ABF QC William Sherwood was observed performing Magnetic Particle Testing (MT) on the completely welded SPCM splice butt joint. There was no significant defect noted during the MT test. This QA also performed more than 10% MT verification with noted same result. QA also performed visual test (VT) verification on the completed weld joint and noted sharp edges and rough grinding on the removal of temporary welded fit up erection aids. QA has informed QC about the presence of such surface defects and agreed to fix them.



WELDING INSPECTION REPORT

(Continued Page 3 of 3)

At OBG 13E/14E bottom plate 'D3' (0mm to 3120mm) inside, ABF welder Jin Pei Wang was observed continuing to perform 1G Flux Cored Arc Welding (FCAW-G) welding fill pass to cover pass on 16mm thick splice butt joint.



12-03-2011 0747 Hours Self Anchored Suspension Bridge



At OBG 13W/14W bottom plate 'D1' (0mm to 9900mm) outside, the profile of the welded fill pass was noted during the random inspection of the SPCM splice butt joint being welded.

12-03-2011 1035 Hours Self Anchored Suspension Bridge

Summary of Conversations:

No significant conversation occurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer